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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,895	07/30/2003	John J. Rossi	1954-413	8585

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EXAMINER	
WHITEMAN, BRIAN A	

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/629,895	ROSSI ET AL.	
	Examiner	Art Unit	
	Brian Whiteman	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *7-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,11-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/30/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/23/04,5/4/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Non-Final Rejection

Claims 1-12 are pending.

The examiner of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be to directed to Brian Whiteman, Art Unit 1635.

Election/Restrictions

Applicant's election without traverse of Group I in the reply filed on 1/30/06 is acknowledged.

Claims 7-10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/30/06.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

The disclosure is objected to because of the following informalities: page 8 lists a US application, but the status of the application is missing.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Rossi et al. (AA). Rossi teaches incorporating a ribozyme (also known as an interfering RNA molecule) into the loop of the VA1 promoter (loop contains a BStEII site) in an expression vector. See columns 5 and 9-10 and Figures 2A, 2B, and 9. Rossi teaches the limitation in claims 5 and 6. See Figures 2A and 2B. Rossi teaches transfecting cells (stem cells) with the expression vector (columns 2 and 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossi (AA) taken with Lau et al. (Science, 294:858-862, 2001). Rossi teaches incorporating a ribozyme (also known as an interfering RNA molecule) into the loop of the VA1 promoter (loop contains a BStEII site) in an expression vector. See columns 5 and 9-10 and Figures 2A, 2B, and 9.

However, Rossi does not specifically teach using microRNA (miRNA) in the vector.

However, at the time the invention was made, Lau teaches two regulatory RNAs (lin-4 and let-7) are members of a large class of 21 and 24 nucleotide non-coding RNAs called miRNAs (page 858). Lau teaches that the abundance and diverse expression patterns of miRNA

genes implies that they function in a variety of regulatory pathways, in addition to their known role in the temporal control of developmental events (page 861).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Rossi in view of Lau, namely to produce an expression vector comprising an adenoviral VA1 promoter operatively linked to a construct encoding a microRNA. One of ordinary skill in the art would have been motivated to combine the teaching to study the role of either lin-4 or let-7 in developmental events.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 1 and 11-12 are rejected under 35 U.S.C. 103(a) as being obvious over Rossi et al. (US 6,995,258) taken with Frey et al. (Abstracts of General Meeting of the American Society for Microbiology 1992, 92, 225, H-254).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in

the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Rossi teaches an expression cassette comprising a coding sequence for an RNA molecule an RNA pol III promoter sequence (columns 19-21). Rossi teaches a cell comprising the RNA molecule (columns 19-21). One of ordinary skill in the art would understand that to express the RNA molecule in a cell the RNA pol III promoter would have to be operably linked to the RNA molecule. However, Rossi does not specifically teach using a VA1 promoter as the RNA pol III promoter

However, at the time the invention was made, Frey teaches use of an adenovirus VA1 promoter in engineering antisense RNA. The ordinary skill artisan understands that a VA1 promoter is an RNA pol III promoter.

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Rossi taken with Frey, namely to produce an expression cassette comprising an RNAi molecule operably linked to a VA1 promoter. One of ordinary skill in the art would have been motivated to combine the teaching to improve the stability of the RNA molecule.

In addition, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Rossi taken with Frey, namely to produce a mammalian cell comprising the expression cassette comprising an RNAi molecule

operably linked to a VA1 promoter. One of ordinary skill in the art would have been motivated to combine the teaching to the study the delivery of HIV TAR RNA to the nucleolus of the cell.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ormum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 11-12 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5, and 9 of U.S. Patent No. 6,100,087. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of '087 are directed to an expression vector comprising an adenoviral VA1 promoter

operatively linked to a nucleic acid encoding a ribozyme (also known as an interfering RNA molecule). The claims from '087 do not specifically recite cells comprising the vector

However, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made, namely to produce a mammalian cell comprising the vector. One of ordinary skill in the art would have been motivated to produce the mammalian cell to study the ribozyme in gene silencing.

Therefore the claims would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made as obvious of the claims of '087.

Claims 1 and 4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5, and 9 of U.S. Patent No. 6,100,087 in view of Lau et al. (Science, 294:858-862, 2001). The claims of '087 are an obvious variant of the instant claims directed to an expression vector comprising an adenoviral VA1 promoter operatively linked to a nucleic acid encoding siRNA. However, the claims from '087 do not specifically recite the vector comprising miRNA.

However, at the time the invention was made, Lau teaches two regulatory RNAs (lin-4 and let-7) are members of a large class of 21 and 24 nucleotide non-coding RNAs called miRNAs (page 858). Lau teaches that the abundance and diverse expression patterns of miRNA genes implies that they function in a variety of regulatory pathways, in addition to their known role in the temporal control of developmental events (page 861).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the claims of '087 in view of Lau namely to produce an

expression vector comprising an adenoviral VA1 promoter operatively linked to a construct encoding a microRNA. One of ordinary skill in the art would have been motivated to combine the teaching to study the role of either lin-4 or let-7 in developmental events.

Therefore the claims as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 1 and 10-11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 7-9 of U.S. Patent No. US 6,995,258 taken with Frey et al. (Abstracts of General Meeting of the American Society for Microbiology 1992, 92, 225, H-254). Claims 1 and 7-9 of '258 recite an expression cassette comprising a coding sequence for an RNA molecule an RNA pol III promoter sequence. Claim 9 recites a cell comprising the RNA molecule. One of ordinary skill in the art would understand that to express the RNA molecule in a cell the RNA pol III promoter would have to be operably linked to the RNA molecule. However, Rossi does not specifically teach using a VA1 promoter as the RNA pol III promoter

However, at the time the invention was made, Frey teaches use of an adenovirus VA1 promoter in engineering antisense RNA. The ordinary skill artisan understands that a VA1 promoter is an RNA pol III promoter.

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the claims of '258 taken with Frey, namely to produce an expression cassette comprising an RNAi molecule operably linked to a VA1 promoter. One of

ordinary skill in the art would have been motivated to combine the teaching to improve the stability of the RNA molecule.

In addition, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the claims of '258 taken with Frey, namely to produce a mammalian cell comprising the expression cassette comprising an RNAi molecule operably linked to a VA1 promoter. One of ordinary skill in the art would have been motivated to combine the teaching to the study the delivery of HIV TAR RNA to the nucleolus of the cell.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 1 and 10-11 are directed to an invention not patentably distinct from claims 1 and 7-9 of commonly assigned US Patent 6,995,258. Specifically, for the reasons set forth under odp rejection as being unpatentable over claims 1 and 7-9 of U.S. Patent No. 6,995,258 in view of Frey (supra).

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned US Patent, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting

inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Conclusion

New claims 31-34 in co-pending US application 10/365,643 could be used in a provisional obvious type double patenting rejection with a secondary reference. However, the claims appear to be drawn to a non-elected invention. Thus, if the claims are rejoined with the elected invention, a provisional odp rejection will be applied to the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Whiteman whose telephone number is (571) 272-0764. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00 (Eastern Standard Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, acting SPE – Art Unit 1635, can be reached at (571) 272-0811.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Fax Center number is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

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BRIAN WHITEMAN
PATENT EXAMINER